ABSTRACT

ANTIBACTERIALS EFFECT OF *Streptomyces sp*-MWS1, *Streptomyces sp*-MWS3, AND *Streptomyces sp*-MWS6 ON NON *Extended-Spectrum β-lactamase* (ESBL)- PRODUCING *Klebsiella pneumoniae* AND *Extended-Spectrum β-lactamase* (ESBL)-PRODUCING *Klebsiella pneumoniae*

Klebsiella pneumoniae is one of the causative agent nosocomial infection. The main concern on this bacterium is directed on the extended-spectrum β-lactamase (ESBL)-producing *Klebsiella pneumoniae*. The therapy of ESBL-producing *Klebsiella pneumoniae* infections is very limited. In mangrove East Coast of Surabaya, it had been found new local isolates *Streptomyces sp*-MWS1, *Streptomyces sp*-MWS3, and *Streptomyces sp*-MWS6. These isolates have potential to produce antibiotics (Retnowati, 2008) . This study was aimed to prove these isolates may inhibit the growth of non ESBL-producing *Klebsiella pneumoniae* and ESBL-producing *Klebsiella pneumoniae*, and that are differences between the antibacterial activity of these isolates.

The test of antibacterial activity of *Streptomyces sp*-MWS1, *Streptomyces sp*-MWS3, and *Streptomyces sp*-MWS6 using the modification Agar print method against clinical isolates of non ESBL-producing *Klebsiella pneumoniae* and ESBL-producing *Klebsiella pneumoniae*. The diameter of inhibition zone (mm) formed shows activity of these isolates.

The profiles of antibacterial activity of *Streptomyces sp*-MWS1, *Streptomyces sp*-MWS3, and *Streptomyces sp*-MWS6 were different in terms of periode required to reach peak activity, duration of activity and inhibition zone diameter produced during 10 days of observation. *Streptomyces sp*-MWS3 reached the peak activity most rapidly on day 3 with the largest inhibition zone diameter of 12 mm in non ESBL-producing *Klebsiella pneumoniae* and 9 mm in ESBL-producing *Klebsiella pneumoniae*. These isolates produced larger inhibition zone diameter in the non ESBL-producing *Klebsiella pneumoniae*.

There were significant differences in inhibition zone diameter between *Streptomyces sp*-MWS1, *Streptomyces sp*-MWS3, and *Streptomyces sp*-MWS6

against non ESBL-producing *Klebsiella pneumoniae* and ESBL-producing *Klebsiella pneumoniae*.

Keyword: *Streptomyces sp*., *Klebsiella pneumoniae*, extended-spectrum β-lactamase (ESBL)-producing *Klebsiella pneumoniae*